Mutations

A **Mutation** is a change in the gene or the process by which a change occurs. Ultra-Violet light is one of the light waves emitted by the sun and is why you are told to put on sunscreen. Certain U.V. radiation or light will damage the genes.

The purpose of sunscreens is to alter the frequency of Ultra-Violet light so it will not damage Genes or Chromosomes in the skin. Glass is also effective in altering U.V. Frequencies, and preventing gene damage in the skin. Ultra-Violet light has a very similar frequency to the Genes and Chromosomes of our skin. (Frequencies are the number of waves or vibrations per second that carry energy or signals. You may have felt this when you touched a bare electrical wire, or seen and heard it as you watched TV.)

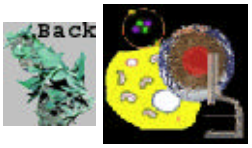
Damaged genes can cause improper functioning or death of a cell because the genes manage their activity and growth. Most often when gene damage occurs and a cell grows abnormally fast. Neighboring cells send out chemicals to destroy the cell. In very rare instances, when a cell grows or multiplies at abnormal, fast speeds, neighboring cells will not destroy it. As a result, cancers occur.

The chart below identifies specific cancers:

Carcinomas	85% of cancers -- surface tissue surrounding all organs including the **skin** organ.
Sarcomas	2% of cancers -- **connective tissues** such as cartilage, tendons, muscle and bone.
Leukemias	4% of cancers -- **bone marrow** and **lymphatic system**
Lymphomas	5% of cancers -- grow specifically in the **lymph nodes.** Later they spill into the blood stream and spread rapidly.

Two types of cancer cells occur. One is **Malignant**, the other is **Benign. Malignant** cells spread to other cells in the body, and are therefore the most dangerous. These cells typically spread through blood and lymph vessels. In blood they become lodged in the capillary tubes, and then pass through the capillary walls into healthy tissue. In the lymph vessels they are trapped in lymph nodes where they multiply.
Benign cells do not spread, and can be removed without fear of their spreading.

Moles on the skin have the potential to be unstable in their growth. Their ability, through their genes, to control their own size is impaired when the skin is exposed to U.V. Light . Recognizing when they undergo an extreme change in color, shape and size is an important skill to prevent the spread or **metastasis** of cancer cells. Cancer cells unlike normal cells cannot stick to neighboring cells. This allows them to move rapidly through the body. This is why you should watch the moles on your skin for any changes and discuss them with a doctor!



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